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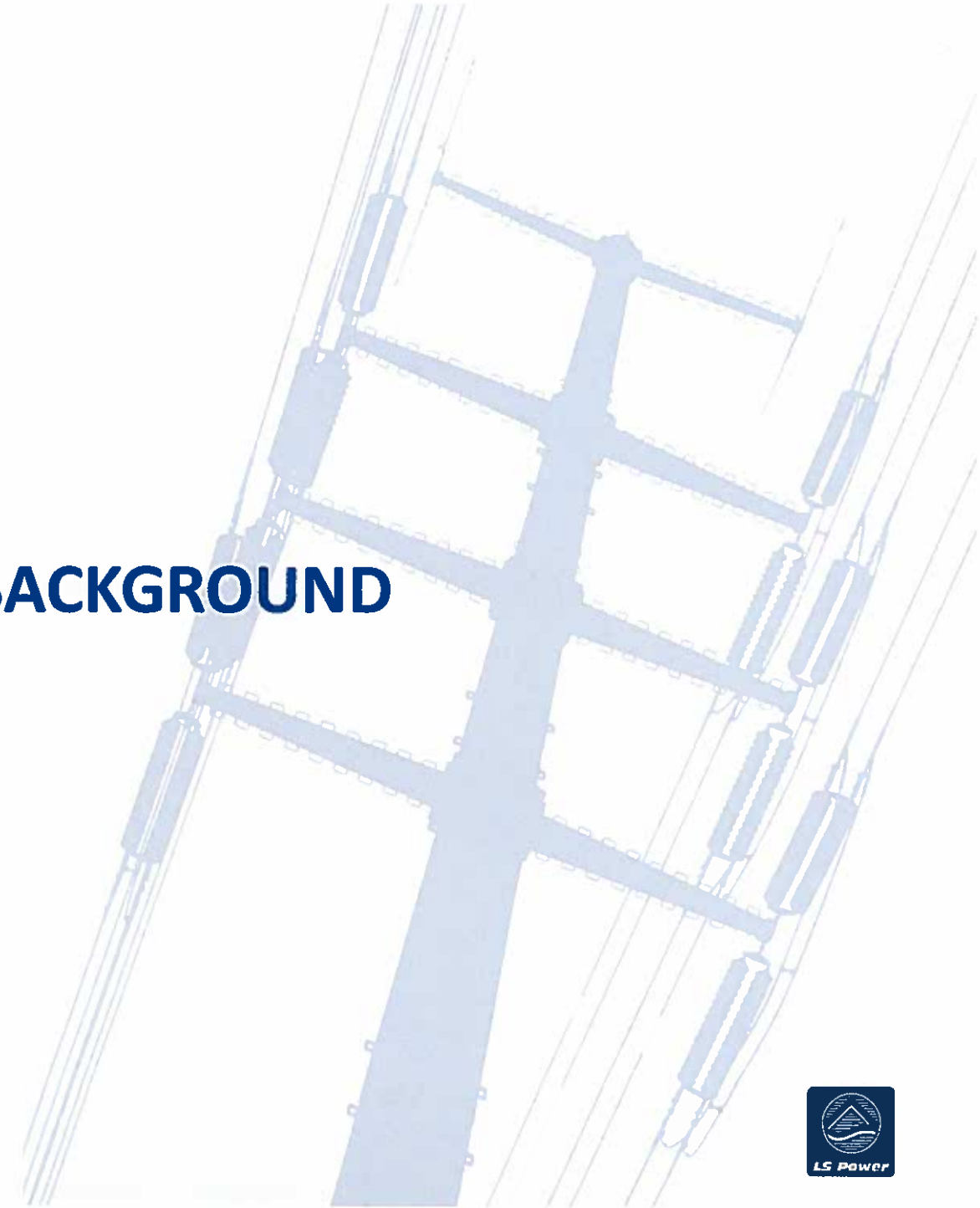
Michigan Legislative Briefing

Transmission Overview

September 2016

BACKGROUND



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2011 – FERC Expands Competition to Grid

- Wholesale Power Competition – in 1990's FERC opened the door to competition in wholesale generation and ordered grid owners to provide open access transmission
- Competitive Pressure Then Turned to the Grid – Policymakers and stakeholders asked whether competitive pressures that brought down the cost of new generation (and transferred risk of cost overruns to the generator from ratepayers) could do the same for large regionally-planned transmission projects.
- FERC Order 1000 – July 2011
  - Requires (1) every transmission owner join a regional planning group; (2) each region create a regional transmission plan; and (3) competition for regionally planned projects (but not for upgrades or local projects).
  - Prohibits Commission-approved tariffs and agreements to contain a ***federal*** right of first refusal.
  - **Michigan** - Prior to 2011, MISO tariff contained a federal right of first refusal for the incumbent utility – this ROFR is now banned for regional projects, as well as similar preferential practices in PJM.

Sources:
[1] LS Power, CREZ Cost differential
[2] FERC.com, Order 1000

2011 – FERC Expands Competition to Grid

- Most States Supported FERC's Order Encouraging New Entrants for Transmission
  - Illinois Commerce Commission
  - Pennsylvania Public Utilities Commission
  - Ohio Public Utilities Commission
  - California Public Utilities Commission
  - All Northeast USA States
  - Most PJM States and Organization of MISO States
- Some State Restrictions Remain
  - CPCN – In 2015, Maryland passed legislation unanimously allowing new entrants to obtain permits to construct transmission (Legislation signed by Republican Governor Hogan.) The vast majority of states nationally do not restrict a qualified new entrant from obtaining a CPCN. Michigan and Nebraska are 2 of 5 outlier states on this issue.
  - Eminent Domain – In the vast majority of states, eminent domain authority for transmission/ public utility companies is able to be used once a CPCN is approved by the utility commission. ***Michigan is an outlier whose laws need to be updated.***
- Expansion of State ROFRs since Order 1000
  - 6 states have enacted new state laws giving ROFR to incumbents. FERC Chairman Bay has publicly noted state ROFRs raise constitutional issues by discriminating against interstate commerce (quote on slide 23)

Sources:
[3] FERC.com, Order 1000
[4] FERC Docket
[5] CPCN data from LS Power

2016 – Qualified Transmission Developers

- There are many Qualified Transmission Developers in MISO and PJM and the majority are affiliates of national and MISO/ PJM incumbents

MISO

- **AEP Transmission Holding Company, LLC**
- ALLETE, Inc. d/b/a Minnesota Power
- Ameren Transmission Company of Illinois
- **American Transmission Company, LLC**
- Brookfield Infrastructure Group Corporation
- Cleco Power LLC
- Cobra Industrial Services, Inc.
- Duke Energy Business Services, LLC for Duke Energy Indiana, Inc.
- **Duke-American Transmission Company, LLC**
- East Texas Electric Cooperative, Inc.
- Edison Transmission, LLC
- Entergy Arkansas, Inc.
- Entergy Louisiana, LLC
- Entergy Mississippi, Inc.
- Entergy New Orleans, Inc.
- Entergy Texas, Inc.
- Eversource Energy Transmission Ventures, Inc.
- Exelon Transmission Company, LLC
- Great River Energy
- GridAmerica Holdings, Inc.
- Hunt Transmission Services LLC
- Iccenlux, Corp.
- Indianapolis Power & Light Company
- International Transmission Company d/b/a ITC Transmission
- **ITC Midcontinent Development, LLC**
- **ITC Midwest LLC**
- **Michigan Electric Transmission Company, LLC**
- MidAmerican Energy Company
- Midcontinent MCN, LLC
- Midwest Power Transmission Arkansas, LLC
- Missouri Basin Municipal Power Agency d/b/a Missouri River Energy Services
- Missouri Joint Municipal Electric Utility Commission
- Montana-Dakota Utilities Co, a Division of MDU Resources Group, Inc
- NextEra Energy Transmission, LLC
- NextEra Energy Transmission Midwest, LLC
- Northern Indiana Public Service Company
- Northern States Power Company, a Minnesota corporation
- Northern States Power Company, a Wisconsin corporation
- Otter Tail Power Company
- Pattern Transmission LP
- PPL TransLink, Inc.
- Public Service Enterprise Group Incorporated
- Republic Transmission, LLC
- South Mississippi Electric Power Association
- Southern Indiana Gas & Electric d/b/a Vectren Energy Delivery of Indiana
- Superior Water, Light and Power Company
- Transource Energy, LLC
- Xcel Energy Transmission Development Company, LLC

PJM

- Atlantic Grid Holdings, LLC
- Dayton Power and Light Company
- Virginia Electric and Power Company
- Dominion High Voltage MidAtlantic, Inc.
- Exelon Corporation
- **American Electric Power Company**
- LS Power Group
- Public Service Electric and Gas Company
- East Kentucky Power Cooperative
- FirstEnergy Corporation
- Clean Line Energy Partners, LLC
- PPL Electric Utilities Corporation
- Duke Energy
- Northern Indiana Public Service Company
- I-to-I Transmission, LLC
- **Duke-American Transmission Company, LLC**
- Duquesne Light Company
- NextEra Energy Transmission, LLC
- Ameren
- **ITC**
- ODEC
- Eversource Energy Transmission Ventures, Inc.
- Brookfield Transmission Development LLC
- GridAmerica Holdings Inc
- Edison Transmission, LLC
- Mid-Atlantic MCN, LLC
- Vectren Utility Holdings, Inc

Sources:
MISO and PJM websites

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DEFINING THE PROBLEM IN MICHIGAN

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Problem: Electricity Investment Gap

- There is an "Investment Gap" in electric industry infrastructure nationwide ***and in Michigan***.
  - *E.g.* –Generation or greater transmission import capability in both Lower and Upper Peninsulas
  - U.S. Department of Energy (DOE): "Significant expansion of the transmission grid will be required under any future electric transmission industry scenario"
  - North American Electric Reliability Corporation (NERC) has identified 39,000 miles of high voltage transmission required in the next 10 years nationally. One-third of this transmission required is to integrate renewable energy into the grid.
  - Energy Information Administration (EIA) forecast: ***Electricity use will increase by 29 percent*** by the year 2030, which will drive more transmission needs.
  - American Society of Civil Engineers: "Investment gap" may, if not addressed, cumulatively result in trillions of dollars in economic output losses.

Sources:
[6] Department of Energy, 20% Wind Energy by 2030 (July 2008)
[7] NERC 2010 Assessment at page 22
[8] Infrastructure Investments, January 2009
[9] FERC Minnesota, Dec 2012

Problem: Electricity Investment Gap

- Need for substantial new investment means consumers will pay more
- Incumbent utility with right of first refusal (ROFR) to build new transmission projects removes pressure to keep costs down
  - Natural monopoly - firm whose economic characteristics (including high capital costs, significant economies of scale, and an output so essential to society that price fluctuations do not result in corresponding changes in demand)
  - 1990's – Decision that generation is no longer a natural monopoly meant wholesale competition and transfer of investment risk to seller, not ratepayer
  - 2011 – FERC finds that same benefits are possible in large transmission infrastructure and ***banned federal ROFRs***
    - » But in Michigan today, existing state law (modified in 2004) limits benefits of transmission competition for regional projects.
    - » MI law needs to be updated to reflect new environment.

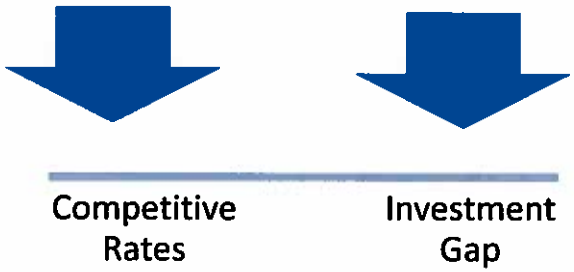
Sources:
[10] EEI 2013
[11] EEI 2015
[12] Infrastructure Investments, January 2009
[13] FERC Minnesota, Dec 2012

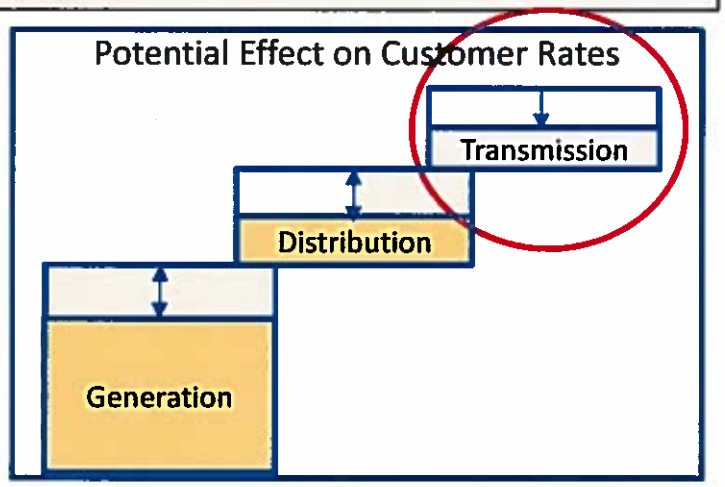
Competitive Transmission - Potential Solution

Under either Retail Structure, Competitive Transmission in Michigan, like Wholesale Competition, has the potential to lower Rates ***and*** the Investment Gap.

Competitive Transmission

- **Proposal** – Allow suppliers to compete for transmission projects at the *wholesale, regional* level.
- **Positive Outcome** – Developers are more conscious of cost overruns and can pass those savings along to customers in the form of lower rates. In other markets, new innovative cost containment transmission proposals have been proposed.
- **Unintended Consequence** – Revenues for utilities that are not cost-conscious may go down.
- **Positive Outcome** – More qualified companies can bid on projects thereby increasing the amount of infrastructure built in the state, increasing the amount of engineering and skilled labor jobs in the state, and improving overall system reliability, all while lowering rates for residential customers and lowering energy costs for businesses.





Sources:
[14] EEI 2015

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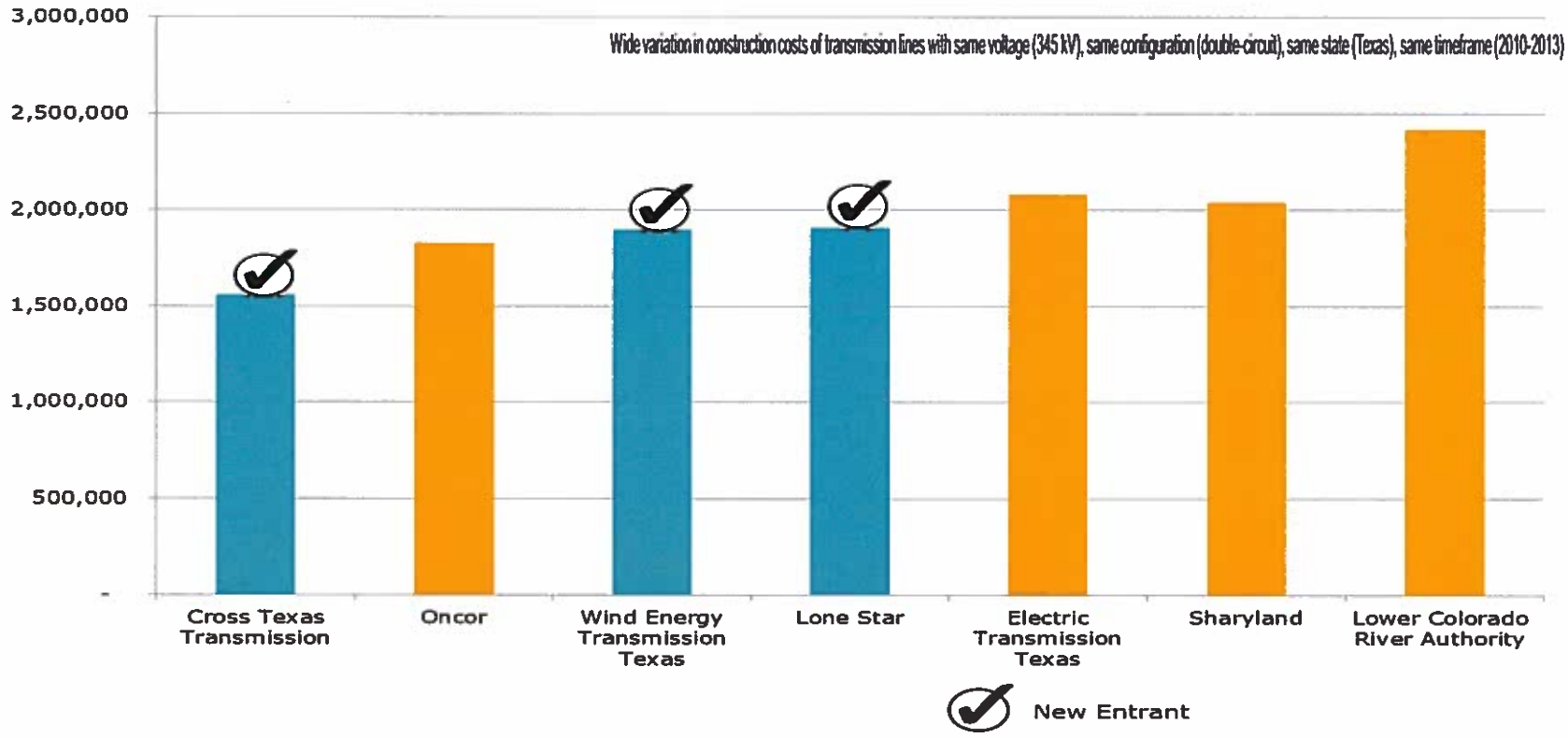
New Entrants Provide Lower Costs - ERCOT

First competitive transmission process in Texas – Texas CREZ lines



Sources:
[15] LS Power, CREZ Cost differential

New Entrants Provide Lower Costs - RTOs

- Significant Participation - Five participants bidding on the Delany-Colorado River project - only one project out of six (Suncrest) had less than three bidders
- Cost Saving - RTOs noted significant savings versus incumbent cost estimates
  - Benefits ratepayers through lower costs and transfer of risks to transmission company's shareholders.
  - Cost Cap measures were continually cited as a determining factor in winning bids by PJM and Cal-ISO.
  - Other factors cited as influencing a winning bid included the willingness to assume cost risk, expertise in particular areas and proximity to spare parts inventory

Recent Order 1000 Competitive Bids

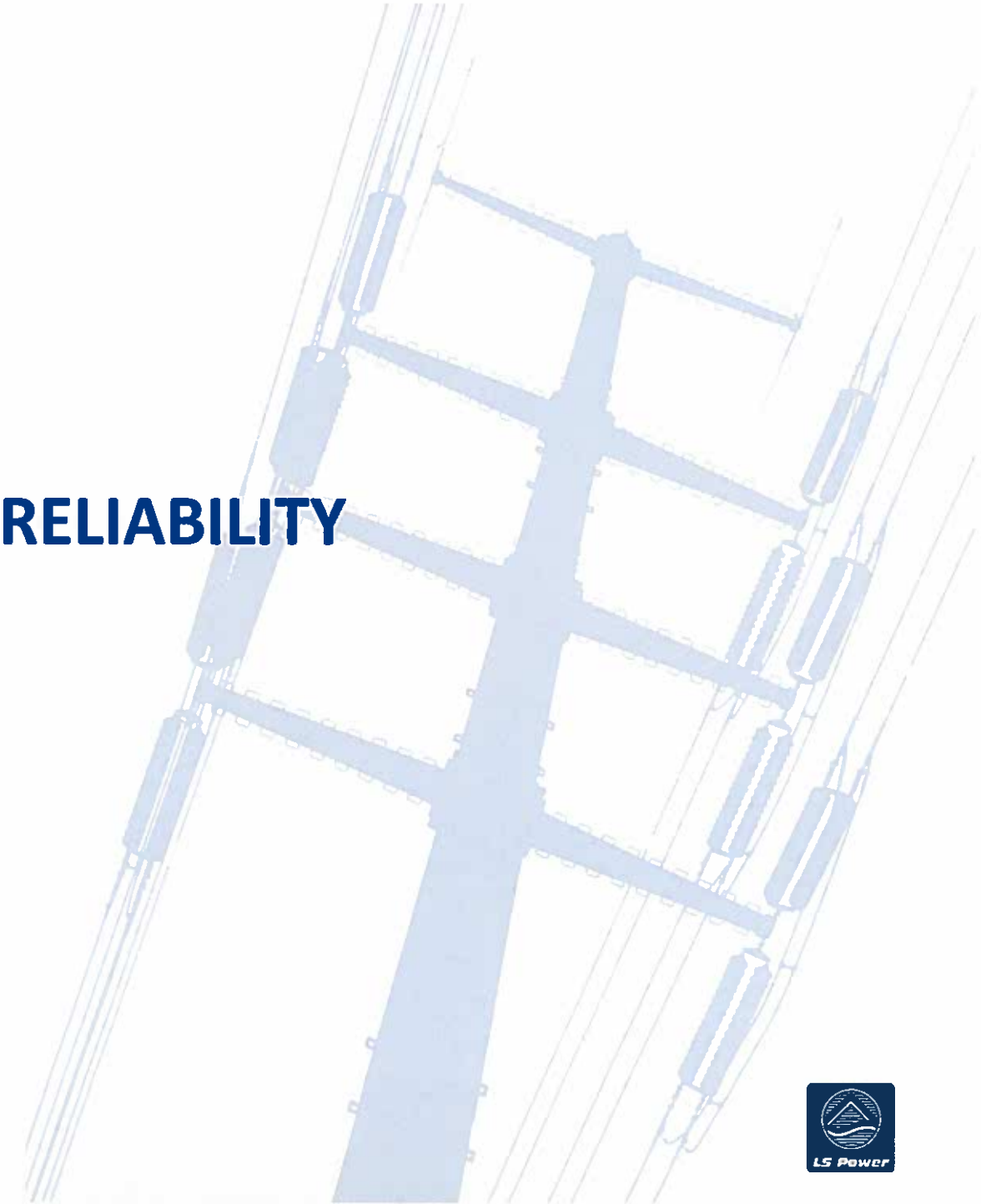
	Project	Cost Cap	Cost	Est. Savings	Market	Winner	Incumbent	Description	Award Date	Service Date
1	Artificial Island	Yes	$146 M	~60%	PJM	LS Power	No	230 kV under Delaware River	28-Apr-15	TBD
2	Delaney - Colorado River	Yes	$300 M	~25%	CAISO	Starwood/ Abengoa	No	114 miles of 500 kV transmission line	10-Jul-15	May 2020
3	Suncrest Reactive Power Project	Yes	$50-$75 M	~30%	CAISO	NextEra	No	230 kV, 300 MVAr	6-Jan-15	2Q 2020
4	Estrella Substation Project	Yes	$35 - $45 M	~40%	CAISO	NextEra	No	230/70-kV substation and transformer	11-Mar-15	May 2019
5	Wheeler Ridge Junction Project	No	$90-$140 M		CAISO	PG&E	Yes	230/115 terminations and transformers	11-Mar-15	May 2020
6	Spring Substation Project	No	$35 to $45 M		CAISO	PG&E	Yes	230/115-kV substation and MVA transformer	11-Mar-15	May 2021
7	North Liberal-Walkemeyer (CANCELED)	No	$8.33 M Cost ($10.57 M NPV)		SPP	Mid-Kansas Electric (Sunflower)	Yes	22.6 mile, 115-kV line	26-Apr-16	May 1, 2019

Sources:
LS Power estimates re Artificial Island based on comparison to what incumbent proposed and would have built absent Order 1000
[16] RTO Insider, Transmission Hub
[17] Cal-ISO and PJM publicly available selection reports
[18] MISO TO Meeting Notes, October 2015
[19] SPP Awards First Order 1000 Project
[20] SPP Cancels First Competitive Tx Project

Benefits of Competitive Transmission

- Benefits of Competitive Transmission - Results have shown that Competitive Transmission can lead to:
  - Lower rates by rewarding efficiency and transferring the risk of cost overruns to the Developer; and
  - Greater reliability by incentivizing new entrants.
- Established Model – The benefits of Competitive Transmission have been demonstrated by successful projects in Cal-ISO and PJM, as well as ERCOT's CREZ process, opening projects to new entrants.
- Benefits for Michigan –Though the RTO (e.g., MISO or PJM) needs to be involved, **legislative leadership can help position Michigan to benefit** from the lower rates and greater reliability that comes from Competitive Transmission.

RELIABILITY



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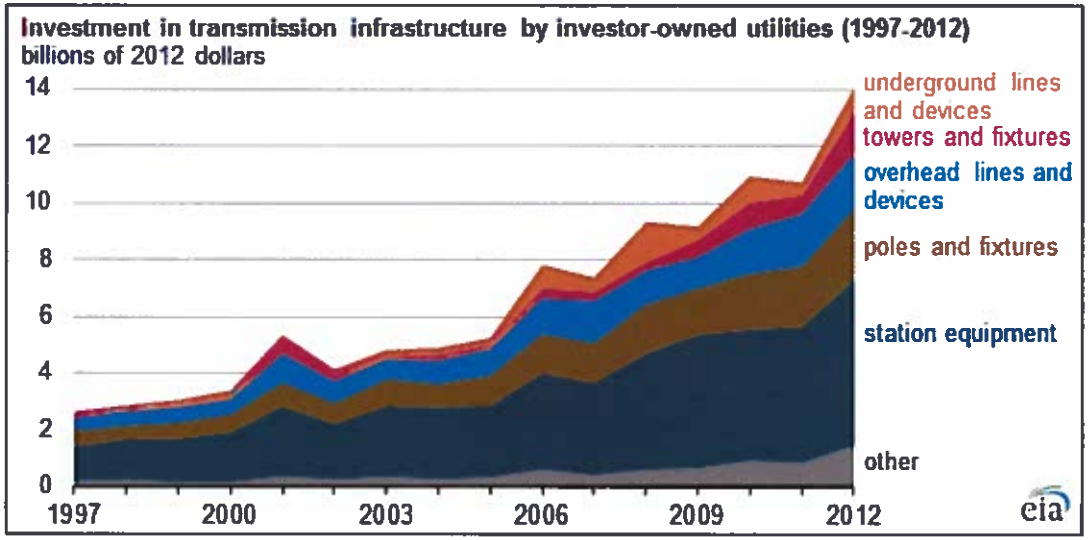
Improving Reliability

- 2003 Blackouts - In mid-August 2003, an electric power blackout lasted up to four days in parts of the U.S. Northeast and Midwest and in Canada, adversely affecting 50 million people and shutting down 62 gigawatts of electric load. The blackout cost an estimated $4 billion to $10 billion in economic losses due to food spoilage, lost production, overtime wages, and powerline damages.

- Government Response - In response to the need for a more reliable system, Congress passed legislation in 2005 that directed FERC to develop incentive-based rate treatments for interstate transmission.

- Subsequent Infrastructure Investment - Investor-Owned utilities have increased investment in transmission infrastructure from about $2 billion in 1997 to over $14 billion per year since 2003. Cooperative utilities have increased from $296 million in 1997 to $892 million by 2011. Spending by government-owned utilities such as federal and municipal utilities on new transmission increased from $852 million in 1997 to $1.3 billion in 2003.

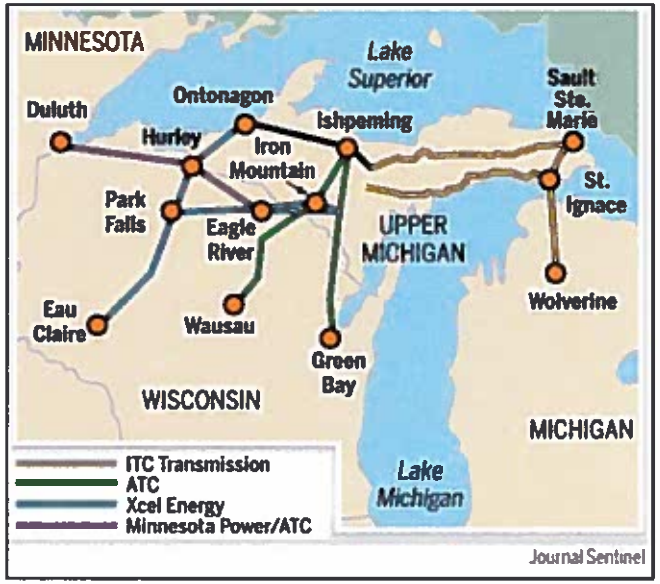


Sources:
[21] EIA, August 26, 2014

Michigan Reliability is Suffering

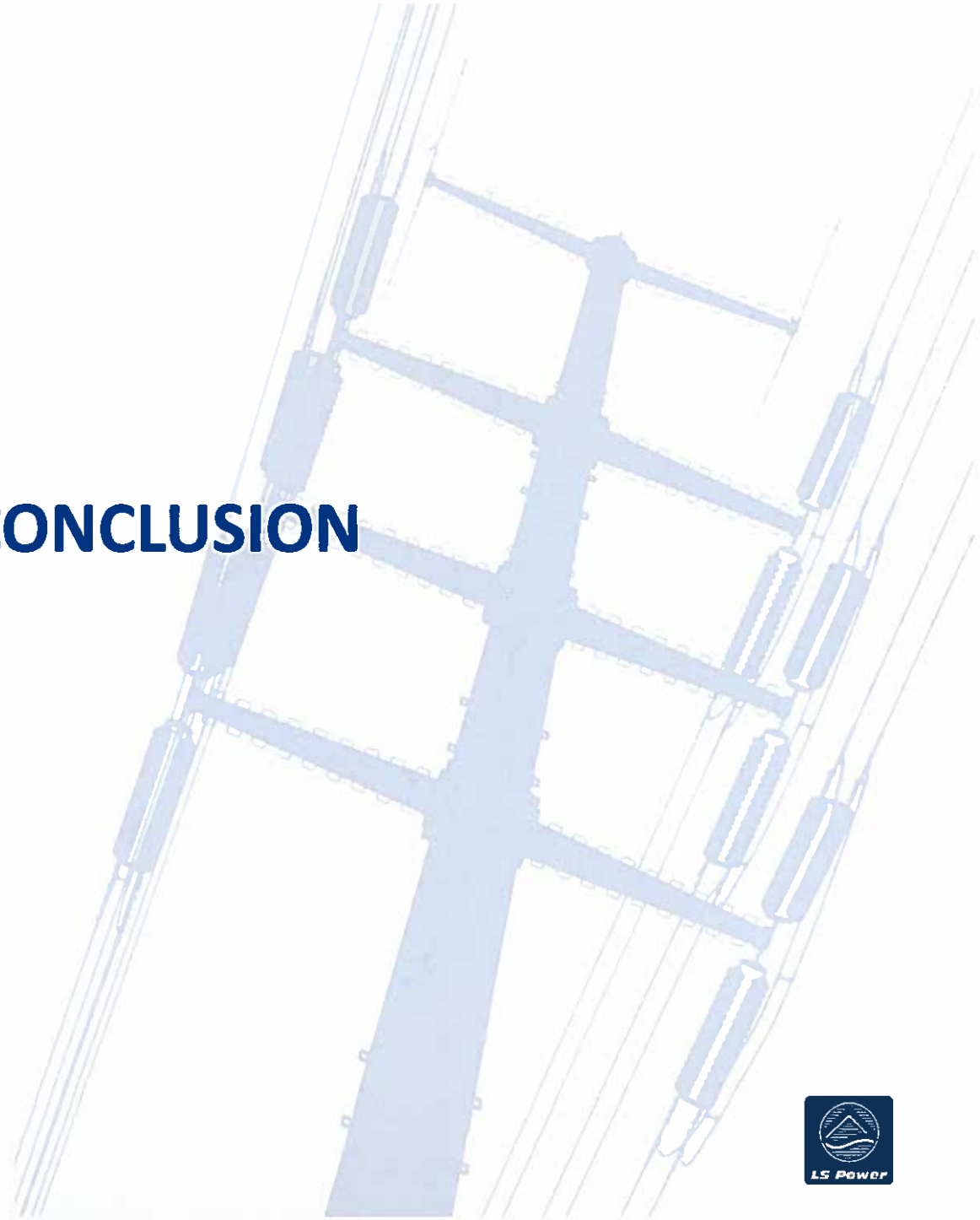
- Michigan Investment – In 2006, Michigan ranked 49th out of 50 states in per capita public investment and 44th in terms of public investment as a percent of GDP. This Infrastructure Gap extends to electric infrastructure.
- Upper Peninsula Shortage - MISO is reviewing a variety of alternatives (transmission and/or generation) to provide low cost, reliable power to Michigan's Upper Peninsula.
- Lower Peninsula Shortage – MISO is now reporting that capacity margins are also too low in Lower Peninsula

- **Competitive Transmission – Would increase the number of developers building transmission projects, decreasing the Investment Gap and increasing reliability. And experience shows costs will be lower – not a benefit Michigan will enjoy unless it ends the ban on new entrants.**



Sources:
[22] Infrastructure Investments, January 2009
[23] Milwaukee-Wisconsin Journal Sentinel
[24] Inside FERC

CONCLUSION



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Conclusion

- Recommendation – To benefit from increased investment in transmission infrastructure, Michigan should take the following steps:
  1) Revise the definition of "independent transmission company" to allow new entrants to apply for MI PSC approval to construct transmission
  2) Clarify that any holder of an approved MI PSC transmission line certificate shall possess eminent domain authority
  3) MI PSC retains full authority over who is issued a certificate to construct transmission. States rights are not diminished
- Benefits to Michigan – Competitive Transmission will lead to:
  1) Lower transmission costs in customer rates
  2) Increased system reliability
  3) Increased economic activity, including job creation, incomes and tax revenues.

Sources:
[25] EIA, August 26, 2014

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Sources

1. LS Power, CREZ Cost Differential Presentation.
2. FERC.com, Order No. 1000 - Transmission Planning and Cost Allocation, http://www.ferc.gov/industries/electric/indus-act/trans-plan.asp
3. FERC.com, Order No. 1000 - Transmission Planning and Cost Allocation, http://www.ferc.gov/industries/electric/indus-act/trans-plan.asp
4. FERC Docket No. RM10-23-000, Transmission Planning and Cost Allocation By Transmission Planning Cost Allocation By Transmission Owning and Operating Public Utilities
5. LS Power, States Restrictions on New Entrants for CPCN and Eminent Domain
6. Investment Projects at a Glance, Edison Electric Institute, March 2013, http://www.eei.org/ourissues/ElectricityTransmission/Documents/Trans_Project_lowres.pdf
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